



Food Safety in Tanzania: *Lessons from Maize and Dairy Supply Chains and Policy Recommendations*

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national dialogue); 15 July 2021 - Dar es Salaam (National dialogue)*

Outline

- Introduction on food safety and why this study was conducted
- Approach used to collect the required data
- What we found and our conclusions



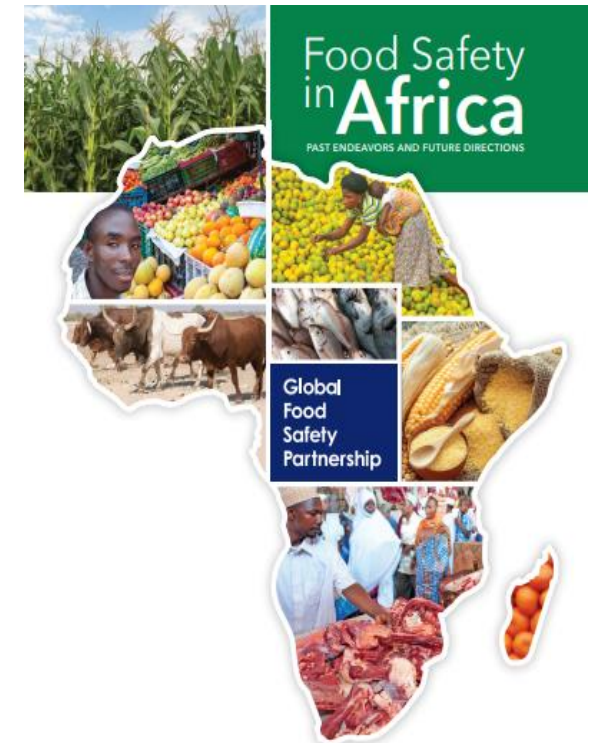
Introduction [1]

- Food safety is critical for better health, nutrition, and economic development
- Food safety is attained when foods are handled, processed and stored in a manner that reduces the risk of foodborne illnesses
- The burden of unsafe food is huge and is comparable to that of the the “Big Three” (malaria, HIV/AIDs, and TB), and is not equally distributed (children, LMICs).

Introduction [2]

- **Informal markets** are important sources of food and provide employment
- An enabling regulatory environment is important in ensuring these markets operate.
- Investments to improve safety of products sold in these markets are needed

<https://cgspace.cgiar.org/handle/10568/108321>



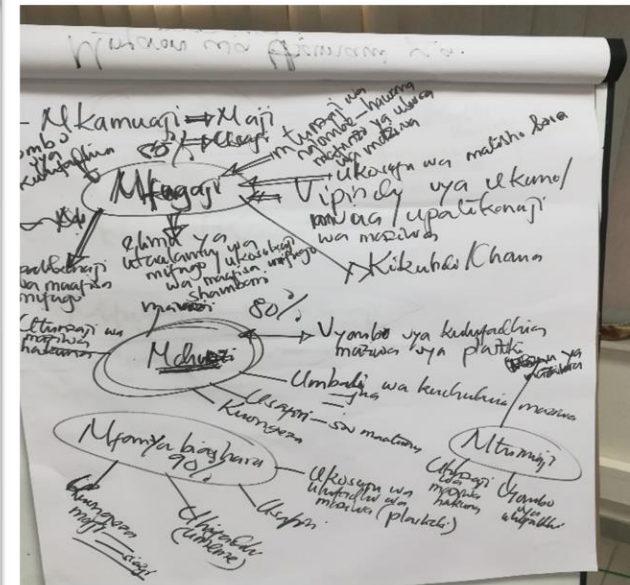
Study objectives

- Analyze the national food control (safety) system in the country: *laws, regulations, policies*
- Analyze food safety in two value chains (maize, dairy):- *understand the distribution channels, know what issues exist, etc.*
- Suggest interventions that could be used to address the gaps

The findings contribute to **UNFSS action track 1** which is about ensuring access to safe and nutritious food for all

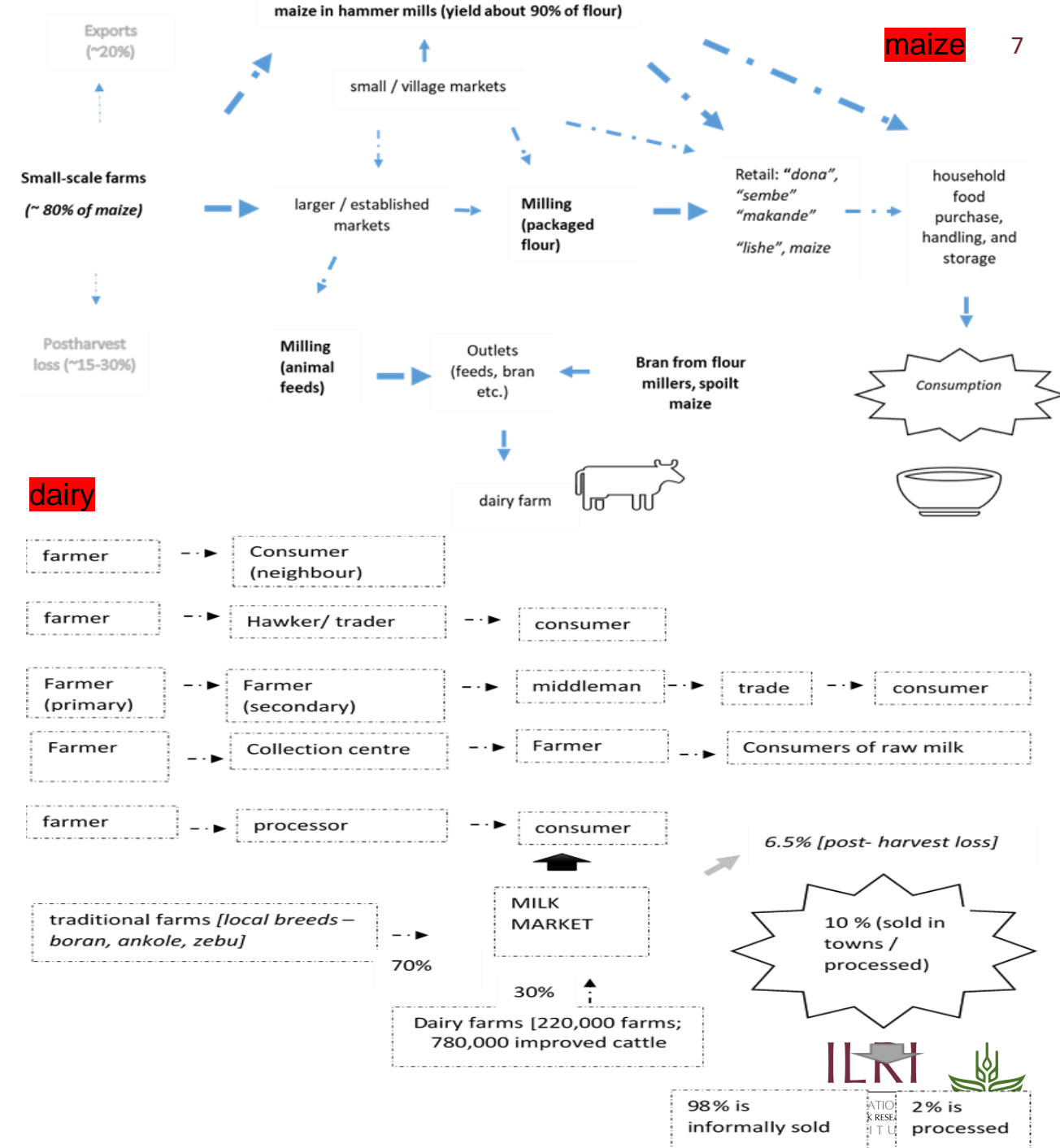
What we did

1. Desk review – regulations & *what has been done on food safety*
2. Then organized for group meetings (*in Morogoro & Dar es Salaam*)
3. Interviews with key informants
4. Then did a final workshop to validate findings

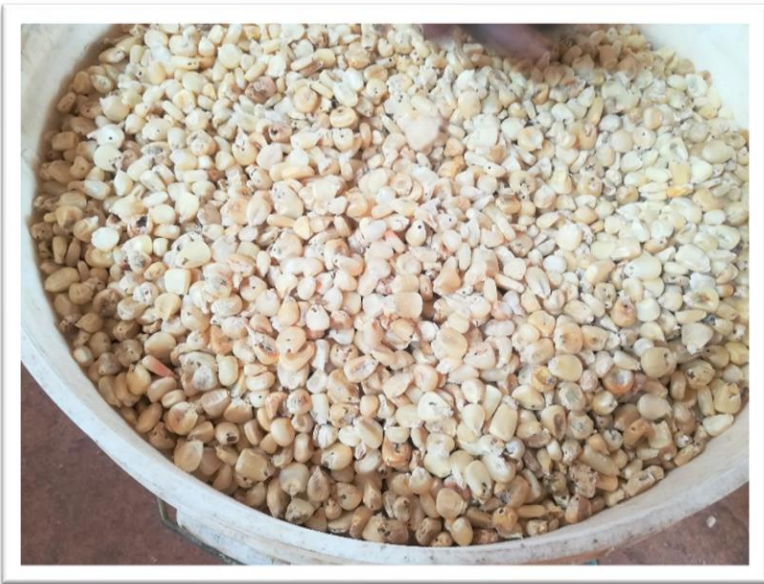


What we found

- Complexity of the value chains [*regulatory issues*]
- Multiple handling of produce from farm to consumption
- The feed system is a useful link between the 2 value chains [*aflatoxins*]



- Behavioral **practices** that increase risks of food contamination
- Highlights **points** that should be targeted by interventions *[next slide]*



Maize handling behaviour	Suggested CCP
Produce is harvested early	Harvesting
Maize is stored in bags of poor quality	Storage
Maize is shelled by beating	Shelling
Maize is sold before being adequately dried	Drying
Farmers intentionally add soil to their produce (to cheat on weight of the maize)	Preparing produce for market
Produce is loaded and off-loaded multiple times during transport	Transport to market

Maize handling behaviour	Suggested CCP
Processing of poor-quality maize	Receiving maize at the mill
Poor handling of by-products	Drying of bran
Engaging staff who are not motivated	Sorting of maize
Flour bags being placed in direct contact with the floor	Storage of flour
Failing to ensure proper sealing of packaging bags	Packaging
Millers re-using other processors bags	Packaging
Selling of expired products	Handling of expired flour

Concerns from literature

- Several reports on mycotoxins (**aflatoxins**, fumonisins etc.) including in complementary foods
- Heavy metals, pesticides and agro-chemicals but data are limited
- Microbial contamination of cooked products (*studies by Kungu et al 2009*)

Perceptions related to safety of different products: 1=“Makande”; 2=“sembe” & 3= “dona”



In Morogoro, we witnessed a case where a family would bring the maize to the milling place, and after dehulling, would take the maize back home for washing and drying, then return later to complete the milling process

Concerns in the dairy value chain [1]

- Use of poor-quality bran
- “treatment” of sick animals by the farmers themselves & failure to observe withdrawal periods
- Surplus milk production and lack of storage facilities;
- Adulteration (farms, vendors)

Concerns in the dairy value chain [2]

- Transport challenges & delays
- Mixing of milk by farmers (different times, also that from neighbors)
- Use of non-food grade plastic containers that cannot withstand the hot pasteurized milk
- Few dairy technologists in the country



Concerns in the dairy value chain [3]

- **Aflatoxin** (animal feeds, milk)
- Bacterial contamination—*Salmonella spp*, *E. coli*, *Stap. aureus*, etc.

PubMed
US National Library of Medicine
National Institutes of Health

Format: Abstract

Food Addit Contam Part B Surveill. 2016 Jun;9(2):85-90. doi: 10.1080/19393210.2015.1137361. Epub 2016 Feb 28.

Aflatoxin M1 in raw milk and aflatoxin B1 in feed from household cows in Singida, Tanzania.


Mohammed S¹, Munissi JJ¹, Nyandoro SS¹.

Abstract

Aflatoxin M1 (AFM1) contamination in raw milk from household cows fed with sunflower seedcakes or sunflower-based seedcake feeds determined in 37 milk samples collected randomly from different locations in Singida region, Tanzania. Aflatoxin B1 (AFB1) contamination in sunflower-based seedcake feed was determined in 20 feed samples collected from the same household dairy farmers. The samples were analysed by RP-HPLC using fluorescent detection after immunoaffinity column clean-up. Recoveries were 88.0% and 94.5%, while the limit of detection (LOD) were 0.026 ng mL⁻¹ and 0.364 ng g⁻¹ for AFM1 and AFB1, respectively. Of the analysed cow's milk samples, 83 (31/37) contained AFM1, with levels ranging from LOD to 2.007 ng mL⁻¹, exceeding both the European Commission (EC) and Tanzania Food and Drug Authority (TFDA) limit of 0.05 ng mL⁻¹. Of the contaminated samples, 16.1% exceeded the Codex Alimentarius limit of 0.5 ng mL⁻¹. AFB1 was present in 65% (13/20) of the feed samples with levels ranging from LOD to 20.47 ng g⁻¹. 61.53% exceeded TFDA and EC maximum limits of 5 ng g⁻¹ for complete dairy animal feed. The observed AFM1 and AFB1 contamination necessitates need to raise awareness to dairy farmers in Tanzania to safeguard the health of the end-users.

KEYWORDS: Aflatoxin M1; Singida; Tanzania; aflatoxin B1; cow's milk; feed

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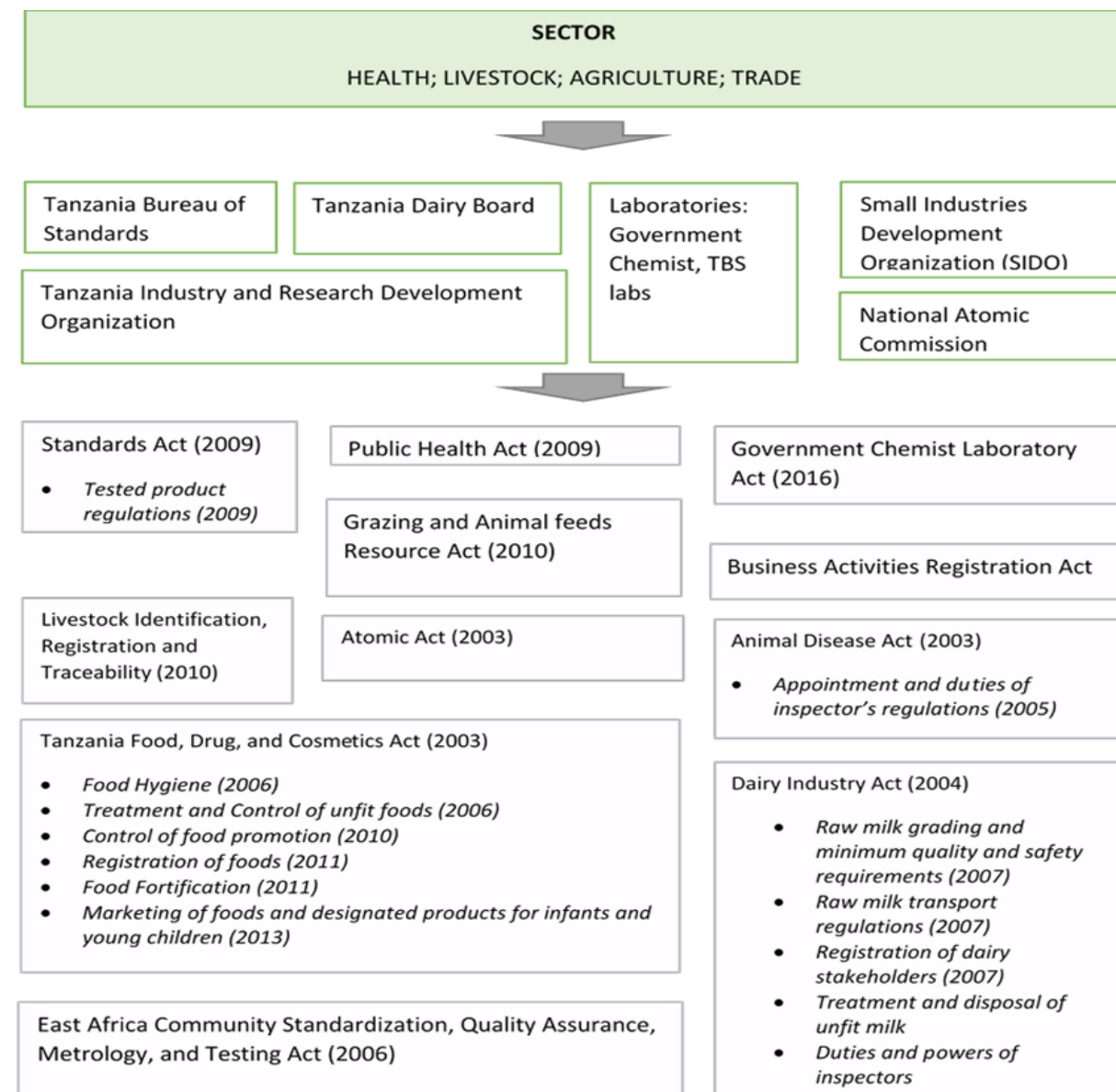
ISOLATION OF *MYCOBACTERIUM* SPECIES FROM RAW MILK OF PASTORAL CATTLE OF THE SOUTHERN HIGHLANDS OF TANZANIA

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- Less aware about food safety regulations
- Perception that established processors are the ones to comply
- Milk processors visited had either fully complied or were in the process



SWOT analysis for formalization

Strengths

- Freedom to run businesses
- Quality and safe products
- Customer trust ==more sales==more profit
- There is “peace” when you formalize

Weaknesses

- Live in fear of being caught by authorities
- So, no drive /incentive to invest on value addition
- Cannot progress--*stuck in the same level for a long time*
- Operate small—*low returns ---cannot afford the fees*

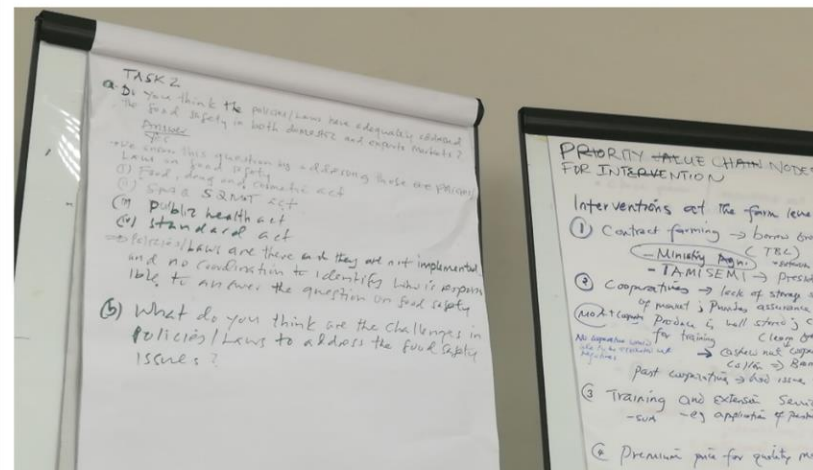
Opportunities

- Access to credit facilities / loans
- You are known by authorities so you can be invited to training seminars, shows etc.

Threats

- Many laws / regulations to comply with
- Risk of business being closed down

Workshop to present & validate the findings



Conclusions [1]

- **Sensitization** of stakeholders about food safety and what each can do to improve it.
- Further **research** to quantify risk and determine what should be prioritized
- **Need for a better and simpler regulatory environment** (given the large number of laws and mandated institutions)

Conclusions [2]

- Call for **increased investments** in support of access to safe and nutritious foods sold through informal markets (*as this is where majority of resource-poor people get their foods, and will continue to do so in the foreseeable future*)
- Initiatives to improve food safety should specifically **target the informal sector** (*as what is designed with the formal sector in mind may not work for the informal one*)

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